AMENDMENTS TO THE CLAIMS

LISTING OF THE CLAIMS:

This listing of claims will replace all prior versions and listings of claims in the application:

1-20. (canceled)

21. (Currently amended) A method of manufacturing ~~an artificial~~ a bioprosthetic heart valve, comprising

(a) providing an acellular matrix,

(b) seeding said matrix with isolated myofibroblasts; and

(c) culturing said myofibroblasts under pulsatile flow conditions;

thereby producing a cellularized bioprosthetic heart valve.

22. (Currently amended) The method of claim 21, wherein said myofibroblasts are derived from an intended recipient ~~from an intended recipient~~ of said centrifugal heart valve.

23. (New) The method of claim 21, wherein the matrix is seeded with isolated myofibroblasts and at least one other isolated cell type.

24. (New) The method of claim 23, wherein the at least one other cell type is selected from an endothelial cell and a secretory cell.

25. (New) The method of claim 23, wherein the valve is seeded with a mixture of cells comprising isolated myofibroblasts and isolated endothelial cells.

26. (New) The method of claim 21, wherein the culturing comprises culturing in tissue culture media consisting of at least one growth factor, or at least one cell signaling factor, or a combination of at least one growth factor and at least one cell signaling factor.

27. (New) The method of claim 26, wherein the tissue culture media comprises an endothelial cell-conditioned media.

28. (New) The method of claim 26, wherein the factors are recombinant, synthetic or isolated from conditioned media.

29. (New) The method of claim 21, wherein the acellular matrix is chosen from the group consisting of an acellular valve structure, a decellularized valve structure or a synthetic valve structure.

30. (New) The method of claim 29, wherein the acellular matrix is a decellularized porcine valve.

31. (New) The method of claim 21, wherein the myofibroblasts are resistant to dedifferentiation.

32. (New) The method of claim 21, wherein the myofibroblasts are obtained from cardiac tissue, vascular tissue, or dermal tissue.

33. (New) The method of claim 32, wherein the cardiac tissue comprises mammalian heart leaflet interstitial tissue.

34. (New) The method of claim 32, wherein the dermal tissue is cultured under conditions that promote a myofibroblast-like phenotype.

35. (New) The method of claim 21, wherein the myofibroblasts are derived from a human donor.

36. (New) The method of claim 35, wherein the human donor is histocompatible.

37. (New) The method of claim 23, wherein the at least one other isolated cell type comprises cells derived from a human donor.

38. (New) The method of claim 37, wherein the human donor is histocompatible.

39. (New) The method of claim 21, wherein the myofibroblasts are syngeneic with respect to the intended recipient of the bioprosthetic valve.

40. (New) The method of claim 23, wherein the cells are syngeneic with respect to the intended recipient of the bioprosthetic valve.

41. (New) The method of claim 21, wherein the myofibroblasts are cultured in the presence of a purified or recombinant growth factor.

42. (New) The method of claim 21, wherein the myofibroblasts produce type I collagen.

43. (New) The method of claim 42, wherein the myofibroblasts produce at least two-fold more type I collagen compared to type III collagen.

44. (New) The method of claim 21, wherein the myofibroblasts are cultured under pulsatile flow conditions comprising flow values of 2-7.5 liters/min, a frequency of 60-120 cycles/min, and resistances to duplicate back pressures of up to 120 mm Hg.

45. (New) The method of claim 21, wherein the myofibroblasts comprise genetically-modified myofibroblasts.

46. (New) The method of claim 45, wherein the modified myofibroblast produces an increased level of collagen I, fibronectin, glycosaminoglycans, recombinant actin and myosin, or heparin, compared to a normal, untreated myofibroblast.

47. (New) The method of claim 45, wherein the modified myofibroblast expresses at least one recombinant polypeptide chosen from bFGF, VEGF, fibronectin, beta 1 integrin, TGF-beta-1, alpha 1 type I collagen, aortic-type smooth muscle alpha-actin, or myosin light chain 1.

RESPONSE

In response to the Restriction Requirement mailed on June 21, 2004, Applicants elect the invention of Group IV (Claims 21-22), drawn to a method of manufacturing an artificial heart valve, classified in class 29, subclass 213. This election is made without traverse.

Please cancel claims 1-20 without prejudice or disclaimer as drawn to non-elected subject matter, and enter the amendments provided above. Applicants reserve the right to pursue the subject matter of canceled claims in a later application. Applicant also reserves the right to prosecute claims which are equal to or broader in scope in this or future applications related to the above-identified patent application.

Upon entry of this amendment, claims 21-47 will be pending. Support for amendments to claim 21 appears in the specification at least, *e.g.*, on p. 1 ln 22-26. Claim 22 is amended to correct a typographical error. Support for new claims 23-47 can be found throughout the specification (see for example, p.2 ln 20-22 and p.4 ln 11-17 for claim 23; p.4 ln 11-17 for claims 24 and 26-28; p.2 ln 20-23 for claims 25 and 29; p.6 ln 20-23 for claim 30; p.1 ln 26-27 for claim 31; p.2 ln 27 to p.3 ln 2 for claims 32-40; p.3 ln 3-14 for claim 41; p.1 ln 27-29 for claims 42-43; p.3 ln 24-25 and p.14 ln 6-18 for claim 44; p.4 ln 3-10 for claims 45-46; and p.4 ln 3-10 and p. 11 ln 11-25 for claim 47).

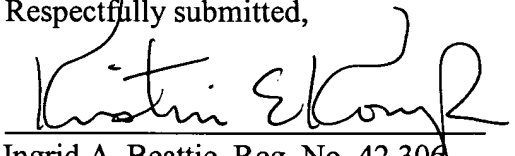
No new matter is presented in this amendment.

CONCLUSION

If there are any questions regarding these amendments and remarks, the Examiner is encouraged to contact the undersigned at the telephone number provided below.

No fee is believed due with this filing. However, the Commissioner is hereby authorized to charge any fees that may be due, or credit any overpayment of same, to Deposit Account No. 50-0311 (Reference No. 21486-027DIV).

Respectfully submitted,



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